

## PROCEEDINGS OF THE CLUB

MEETING OF NOVEMBER 16, 1938

The meeting of the Torrey Club held at Columbia University was called to order by the first vice-president, Dr. Ralph Cheney, at 3:35 P.M. with 26 persons present.

The minutes of the meetings of October 19 and November 1 were adopted as read.

The following were elected annual members of the Club: Miss Lucille M. Joyce, 386 Bergen St., Brooklyn, N. Y.; Miss Mary Elizabeth Pierce, Brooklyn Botanic Garden, 1000 Washington Ave., Brooklyn, N. Y.

Miss Edith V. Folger, 21 E. Magnolia Ave., Maywood, N. J., and Miss Bertha Perlmutter, 4829 61st St., Woodside, Long Island, N. Y., were elected associate members.

The resignation of Mrs. Wanda K. Farr, Boyce Thompson Institute, 1086 N. Broadway, Yonkers, N. Y. and Dr. Samuel Kaiser, Biology Department, Brooklyn College, 80 Willoughby St., Brooklyn, N. Y., were accepted with regret.

The transfer of Miss Alexandra Kalmykov, 473 West 158th Street, New York, N. Y., from associate to annual membership was approved.

Dr. B. O. Dodge, Chairman of the Nominating Committee presented his report to the Club, the nominations being as follows:

(Vote for One)

<i>President</i>	<i>1st Vice- President</i>	<i>2nd Vice- President</i>
A. H. Graves	R. H. Cheney	W. S. Thomas
P. W. Zimmerman	R. C. Benedict	J. J. Copeland
Sam F. Trelease	G. T. Hastings	Cornelia L. Carey
<i>Treasurer</i>	<i>Corr. Secretary</i>	<i>Rec. Secretary</i>
H. N. Moldenke	J. S. Karling	Miss C. Chandler
<i>Editor</i>	<i>Bibliographer</i>	<i>Business Manager</i>
R. P. Wodehouse	Mrs. E. H. Ful- ling	M. Levine

*Delegate to Council of  
N. Y. Academy of  
Sciences*

W. J. Robbins

*Representative on Board  
of Managers, N. Y.  
Botanical Garden*

T. E. Hazen

(Vote for Four)

*Members of the Council*

Mrs. G. P. Anderson

F. E. Denny

H. H. Clum

W. J. Robbins

John M. Arthur

Alfred A. Gunderson

E. B. Matzke

(Vote for Two)

*Representatives on the Council of the A. A. A. S.*

John H. Barnhart

William Crocker

The scientific part of the program consisted of reports by Mr. D. A. McLarty and Mr. Arthur B. Hillegas of the Botany Department of Columbia University.

Mr. McLarty reported on "The Identity and Relationship of Certain Species of *Pseudolpidium*."

"In 1892 Fischer reinstated Cornu's genus *Olpidiopsis* to its original status and established the genus *Pseudolpidium* to include small, *Olpidiopsis*-like, chytridiaceous parasites of various water molds which exhibit no adjacent cell in relation to their resting spores. Fischer described the zoosporangia of *P. saprolegniae* as being thin-walled and spherical or oval in shape in contrast to long-ellipsoidal or cylindrical zoosporangia as in the case of *P. fusiforme*. In each case he described a heavy-walled, spiny resting spore similar to the zoosporangium with which it was associated.

"In swollen filaments of *Achlya* obtained in November, 1937, zoosporangia of *P. fusiforme* were observed and a study of the life cycle and cytology of the species was begun. However, it was soon noted that dependent upon the conditions of growth it was possible to obtain in one culture all the types of sporangia mentioned above. The spiny sporangia proved to be thin-walled and germinated directly. Thick-walled, spherical, spiny sporangia similar to those described by Butler for certain species of *Pseudolpidium* were observed from time to time. To determine

the relationships which exist between these structures culture experiments were begun.

"Using a micropipette a few zoospores were collected from a germinating fusiform sporangium and sown in sterile charcoal water in a petri dish containing a young culture of pure *Achlya*. Within twenty-four hours several fusiform sporangia appeared in the *Achlya* filaments. Each zoospore gave rise to a sporangium without fusions to produce a plasmodium.

"From this culture single sporangia were isolated and monosporangium cultures of the fungus were established. The primary infection of the pure *Achlya* culture resulted again in the production of a few solitary fusiform sporangia. However in the course of four or five days secondary infection took place and large swellings were formed in the filaments which contained many spherical to cylindrical zoosporangia varying in size over a large range. Finally many of the sporangia became spiny but germinated directly. Spherical, thick-walled, spiny resting spores were observed in cultures five days old.

"The various types of sporangia which Fischer described for his species are simply modifications of one form which seem to be dependent upon the amount of nourishment which the developing thallus can derive from the host. The "resting spores" which he described are zoosporangia which become spiny in accordance with the age and condition of the host. The true resting spore is spherical, thick-walled and spiny differing from that of *Olpidiopsis* only in the absence of the adjacent cell."

Mr. Hillegas spoke on the "Cytology of *Endochytrium*."

"The chytridiaceous form *Endochytrium* is a member of the Rhizidiaceae. The mature thallus consists of a typically flask-shaped, operculate zoosporangium and a well developed branched rhizoidal system. In addition to the evanescent sporangia thick-walled resting spores are formed.

"The sporangium develops as an enlargement of the germ tube. The protoplasm is at first hyaline, vacuolated and with large refractive globules. The refractive globules and vacuoles disappear giving rise to a uniformly granular protoplasm. These granules fuse to form the refractive globules of the zoospores. A wall is formed between the rhizoid and the sporangium at the granular stage. Nuclei are not found in the rhizoid and evidence indicates that the cytoplasm is withdrawn from the

rhizoid into the sporangium preceding the formation of the wall.

"The cytology of *Endochoytrium* has been traced from the zoospore through the formation of the zoosporangium and the resting spore. The nucleus from the zoospore migrates into the germ tube and at that point where migration stops the center of organization of the thallus is established. The resting nuclei possess a large ring-shaped nucleolus. The spindle is intranuclear with central bodies appearing at the poles. A large nuclear cap is associated with the zoospore nucleus. Cleavage of the sporangium is by progressive furrowing to form the uninucleate zoospores.

"Germination of the resting spore is reported here for the first time. On germinating it gives rise to a sporangium. The resting spore is a prosperangium with one or more nuclei.

"Microchemical tests applied to the refractive substance of the zoospores, sporangia and resting cells indicate that this is a fat."

The meeting adjourned at 5:00 P.M. After the meeting tea was served in the mycology Laboratory.

CLYDE CHANDLER  
Recording Secretary

#### MEETING OF DECEMBER 6, 1938

The meeting of the Torrey Botanical Club held at the American Museum of Natural History on December 6 was called to order by the President, Dr. Alfred Gunderson at 8:15 P.M. Forty-two persons were present.

Dr. William S. Thomas briefly described the memorial service held on Long Mountain for the late Raymond H. Torrey.

All business of the Club was omitted so that more time might be devoted to the program of the evening which consisted of an illustrated talk by Dr. Thomas on the "Edibility of Mushrooms." After discussing the historical aspect of mushrooms and organic constituents the speaker pointed out that there is really very little nutrient value in mushrooms since 88% of them is water. Some vitamins are present. There are about 210 calories in a pound of mushrooms. As various colored slides were shown Dr. Thomas told how edible species can be distinguished from poisonous types. If mushrooms turn blue when cut, bite the

tongue, or have a repulsive odor, they are to be avoided for table use.

The meeting adjourned at 9:45 P.M.

CLYDE CHANDLER  
Recording Secretary

#### MEETING OF DECEMBER 21, 1938

The meeting of December 21 held at the New York Botanical Garden was called to order by the Corresponding Secretary, Dr. J. S. Karling. Twenty-three persons were present.

The minutes of the meetings of November 16 and December 6 were approved as read.

The following were elected annual members of the Club: Dr. Robert B. Gordon, State Teachers College, West Chester, Penn., and Mr. Leon Hervey, 2121 Grand Concourse, Bronx, N. Y. The transfer of Miss Louelle B. Conkling from associate to annual membership was approved.

The following were elected associate members of the Club: Mrs. Edith Bennett, 45 Pondfield Road West, Bronxville, N. Y., and Miss Blanche C. Mayhew, 144 S. 2nd Avenue, Mt. Vernon, N. Y.

The resignations of Mr. Louis S. Jaffe, 97 Chester Avenue, Brooklyn, N. Y.; Mr. Ludwig H. Grunebaum, 11 Brayton Road, Scarsdale, N. Y.; Mr. Oran B. Stanley, Colgate University, Hamilton, N. Y.; and Dr. Flora A. Haas, Arkansas State Teachers College, Conway, Ark. were accepted with regrets.

The resignation of the following associate member was also accepted with regret: Mrs. Robert C. Hill, Palisades, Rockland Co., N. Y.

The death of Dr. Charles P. Dring was reported.

Dr. H. K. Svenson was elected as an alternate for Dr. William Crocker who is a delegate to the American Association for the Advancement of Science but who is unable to attend the Richmond meetings.

The scientific program consisted of a lecture illustrated by lantern slides and motion pictures on "Recent Results of Growth Substance Research" by Dr. P. W. Zimmerman of the Boyce Thompson Institute for Plant Research, Inc.

“By means of lantern slides the work on growth substances was briefly reviewed and then recent findings were presented, under three headings as follows: 1. Extraction and identification of applied growth substances. 2. Effect of growth substances on storage organs. 3. Activation of chemicals with ultra-violet light.

“Three of the most important growth substances (*α*-naphthaleneacetic acid, indoleacetic acid, and indolebutyric acid) were applied to plants in various ways and extracted, tested, and identified at later dates. After gladiolus corms had been treated they grew shoots and roots. The new organs were extracted 24 days after treatment and found to contain the substance. In general the extracts were tested for physiological activity and identified by the colorimetric test and X-ray diffraction patterns.

“Bulbs, corms, tubers and storage roots were induced to grow an abnormally large number of roots from treatment with several growth substances. Phenylacetic acid was shown to break the dormancy of *Helianthus tuberosus* tubers, while naphthaleneacetic acid induced an abnormally large number of roots.

The *trans* form of cinnamic acid is not physiologically active but became active after treatment with ultra-violet light. Light changes *trans* to *cis* cinnamic acid which is the active form.

Plants treated with the *trans* cinnamic acid and then placed in the dark did not respond, but when placed in light made a pronounced physiological response. This indicates that the chemical is activated after it is applied to the plant.

“The lecture closed with time-lapse motion pictures showing plants responding to growth substances. The most striking was, perhaps, the Kalanchoe plant showing treatment of a part of the stem with growth substance which induced roots to grow from the treated region.”

The meeting adjourned at 5 P.M.

CLYDE CHANDLER  
Recording Secretary

#### THE ANNUAL MEETING—JANUARY 3, 1939

The annual dinner of The Torrey Botanical Club was held at the Men's Faculty Club of Columbia University on January 3 at 6 P.M. The business meeting was called to order at 7:10 P.M. by President Gunderson with 58 persons present.

The minutes of the meeting of December 21 were adopted as read.

Mrs. Mary Holtzoff, 557 West 148th St., N. Y. C. and Sr. J. P. Carabia, Vedado, Habana, Cuba, (associate member), were elected to annual membership.

Mr. Adolph Henning, 421 Hillside Place, South Orange, N. J. and Miss Anna Harvey, 71-27, 65th Street, Glendale, Long Island were elected associate members of the Club.

The resignation of Prof. Charles P. Smith, Route 1, Saratoga, Calif. was accepted with regret.

After the annual reports of the officers and committee chairman of the Club an open discussion was held on how the meetings of the Club might be made more interesting to the members.

The result of the election of new officers by ballot, reported by the Corresponding Secretary, Dr. J. S. Karling, was announced. The list of officers appears on the inside front cover of this issue of *Torreya*.

Dr. Alfred Gunderson as retiring president of the Club very ably revived the idea of the importance of an outdoor university stressing the fact that laboratory work should not be the beginning of a study of botany but should supplement field work.

The meeting adjourned at 8:25 P.M.

CLYDE CHANDLER  
Recording Secretary

#### MEETING OF JANUARY 18, 1939 AT THE NEW YORK BOTANICAL GARDEN

The meeting of the Torrey Club was called to order at 3:30 P.M. by the Corresponding Secretary, J. S. Karling. Twenty-six persons were present. Since neither the President nor the Vice-Presidents were present Dr. Karling was elected Chairman of the meeting.

The minutes of the meeting of January 3 were read and after certain deletions were adopted by the Club.

Miss Gertrude Moodey, 603 Watchung Ave., Plainfield, N. J. and Dr. William Brown, Botanical Laboratory, Johns Hopkins University, Homewood, Baltimore, Md., were elected to annual membership.

Dr. Ray J. Davis, Department of Botany, University of

Idaho, Southern Branch, Pocatello, Idaho, was elected an associate member.

The following resignations were reported: Annual: Mr. G. Russell Fessenden, 5130 Connecticut Ave., Washington, D. C.; Mr. Henry O. Severence, University of Missouri, Columbia, Mo., and Mr. Abraham Rabinowitz, 610 West 163rd St., New York, N. Y. Associate: Miss Mabel Foellner, Ferndale, Penn. and Miss Francis Johnston, 10 Mitchell Pl., New York, N. Y.

Dr. Harold N. Moldenke read an excerpt from a letter received from Alexander W. Burkhardt which follows:

"For the information of the Torrey Botanical Club Members you might report that there is now \$313.25 on deposit for the Raymond H. Torrey Memorial Fund at the Bank for Savings, 280 4th Ave., New York City. Of this sum your members have contributed \$118.50. The balance \$194.25 with the exception of a few small contributions has all been donated by members of the Green Mountain Club. Checks are still coming in, only yesterday I received six dollars. Several G. M. C. members have pledged money which I should receive during the next few weeks."

It was voted that the meeting of February 15 be held at the Brooklyn Botanic Garden.

The President announced the committees for the coming year. They are given on the inside back cover of this issue of *Torreyana*.

The scientific part of the program consisted of reports on: (1) the study of the development and differentiation of the mega- and microsporangia of *Regnellidium diphyllum* by Dr. M. A. Chrysler of Rutgers University and (2) The Study of the Male and Female Gametophytes of *Regnellidium diphyllum* by Mr. N. L. Higinbotham.

The speaker's abstracts follow:

"The work here reported continues the study of material of *Regnellidium* which was put into the writer's hands after the death of Dr. D. S. Johnson. Stages in the development and differentiation of the mega- and microsporangia were traced, and the shape of the apical cell has been determined. The formation and behavior of the tapetum was described, especially its rôle in building the remarkable epispore of the megaspore wall. The spores of the three genera of Marsilleaceae were compared."

"*Regnellidium*, an aquatic fern found only in Brazil, is a

monotypic genus of the Marsilleaceae. A study of the two gametophytes has shown them to be essentially like those of the other two genera of this family, *Marsilea* and *Pilularia*. However, a unique feature in the male gametophyte of *Regnellidium* is the formation of a second prothallial cell in the same manner as the first, i.e., by an unequal division of the large central cell. The male gametophyte at maturity consists of two prothallial cells, and two antheridia, each antheridium having three wall cells and sixteen sperms.

"The female gametophyte differs from those of *Marsilea* and *Pilularia* in that the archegonium wall at the time of fertilization is composed of two layers of cells rather than one.

"The gametophytes attain maturity in about 16–22 hours."

CLYDE CHANDLER  
Recording Secretary

#### NEWS NOTES

DR. WILL S. MONROE, at whose home at Couching Lion Mountain, Vermont, members of the Torrey Club have often been entertained died on January 29 at the hospital at Burlington in his seventy-sixth year. Professor Monroe was widely known as a writer and lecturer. He was for some years professor of psychology at Massachusetts State Normal School and later at the New Jersey State Normal School at Montclair. He gave courses of lectures at Columbia and at the University of Vermont. In 1918 he went to France as a member of President Wilson's peace inquiry commission. In 1925 he retired from teaching, but the following year gave lectures at the University of Sofia in Bulgaria. He built the Monroe Skyline, a section of The Long Trail of the Green Mountain Club, extending from Winooski Gorge to Middleburg Gap, a distance of forty-eight miles.

DR. IVAN C. JAGGER, plant pathologist of the U. S. Department of Agriculture, died in San Diego, California, on February 17. Dr. Jagger had worked on developing disease resistant fruits and vegetables in the Imperial Valley of California. He was born in Palmyra, N. Y. and graduated from Cornell University in 1911. Before he began his service with the Department of Agriculture he was an assistant professor at the University of Rochester.

J. FRANCIS MACBRIDE, associate curator of the herbarium of